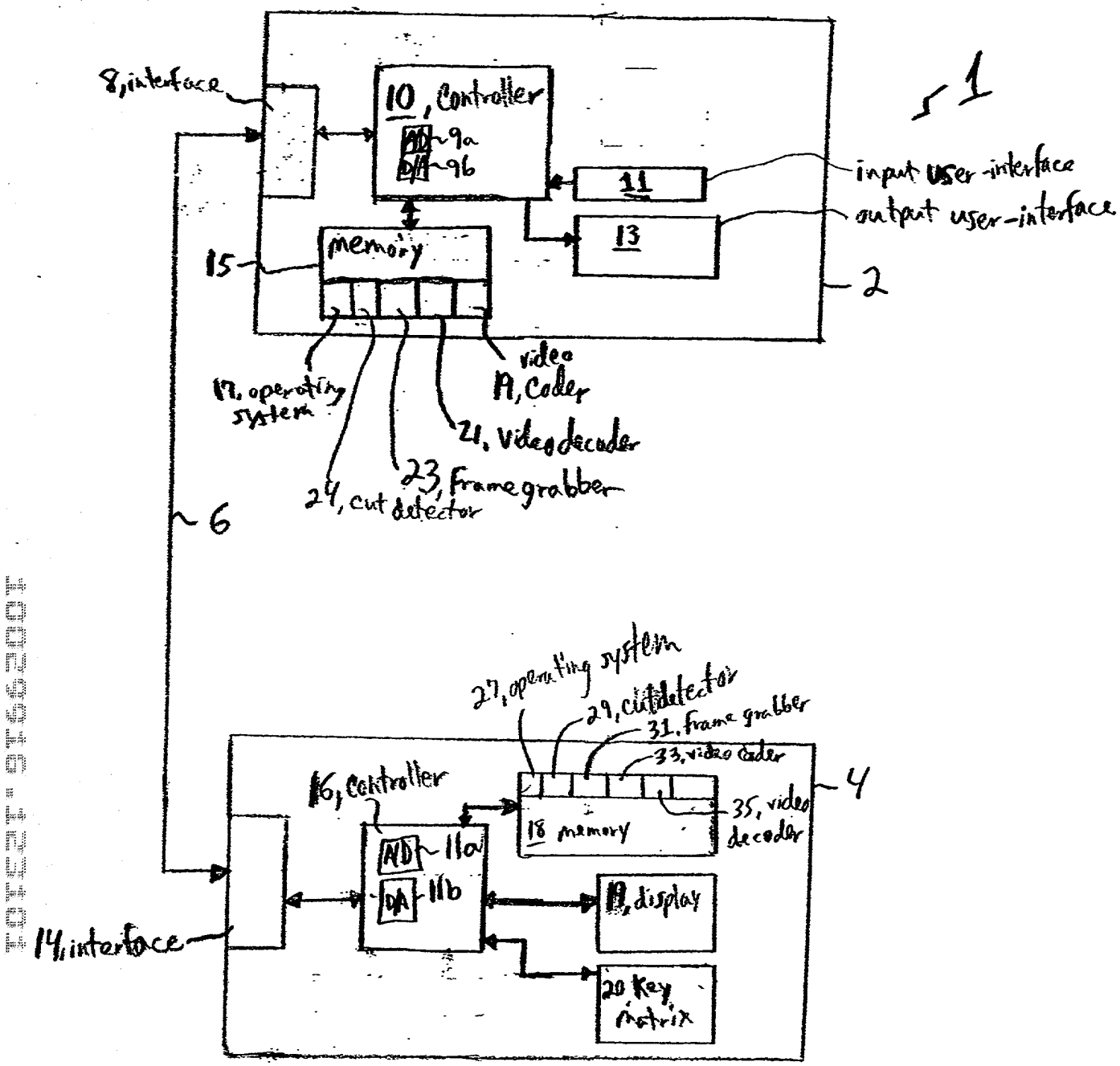
8, interface
10, Controller
9a
9b
11
input user-interface
output user-interface
13
memory
15
2
17, operating system
video
A, Coder
21, Video decoder
24, cut detector
23, Frame grabber
6
27, operating system
29, cut detector
31, Frame grabber
33, video coder
16, Controller
4
18 memory
35, video decoder
A/D
11a
D/A
11b
19, display
14, interface
20 Key matrix

Fig. 1

Cr#	SeparationThld	UnicolorInSuccThld	MinCommercialThld	MaxCommercialThld	RestartThld	DistForSuccThld
Cr1	ST1	UIST1	MinCT1	MaxCT1	RT1	DFST1
Cr2	ST2	UIST2	MinCT2	MaxCT2	RT2	DFST2
Crn	STn	UISTn	MinCTn	MaxCTn	RTn	DFSTn

FIG. 2

PCT/US98/24233

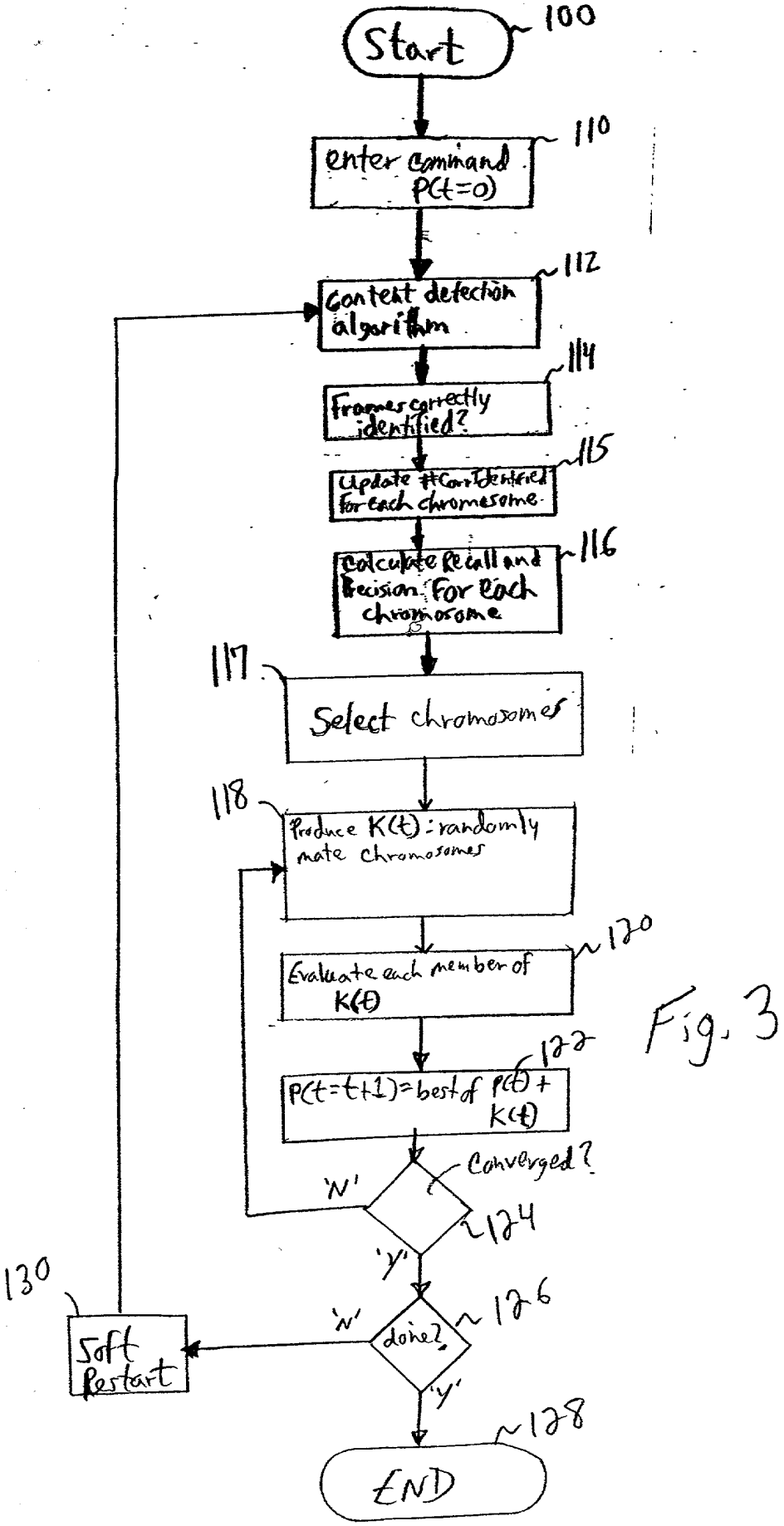
Start
100
enter command P(t=0)
110
Content detection algorithm
112
Frames correctly identified?
114
Update #Correctly identified for each chromosome
115
Calculate Recall and Precision For each chromosome
116
117
Select chromosomes
118
Produce K(t): randomly mate chromosomes
Evaluate each member of K(t)
120
P(t=t+1)=best of P(t)+K(t)
122
Converged?
'N'
'Y'
124
'N'
done?
126
'Y'
130
Soft Restart
128
END

Fig. 3

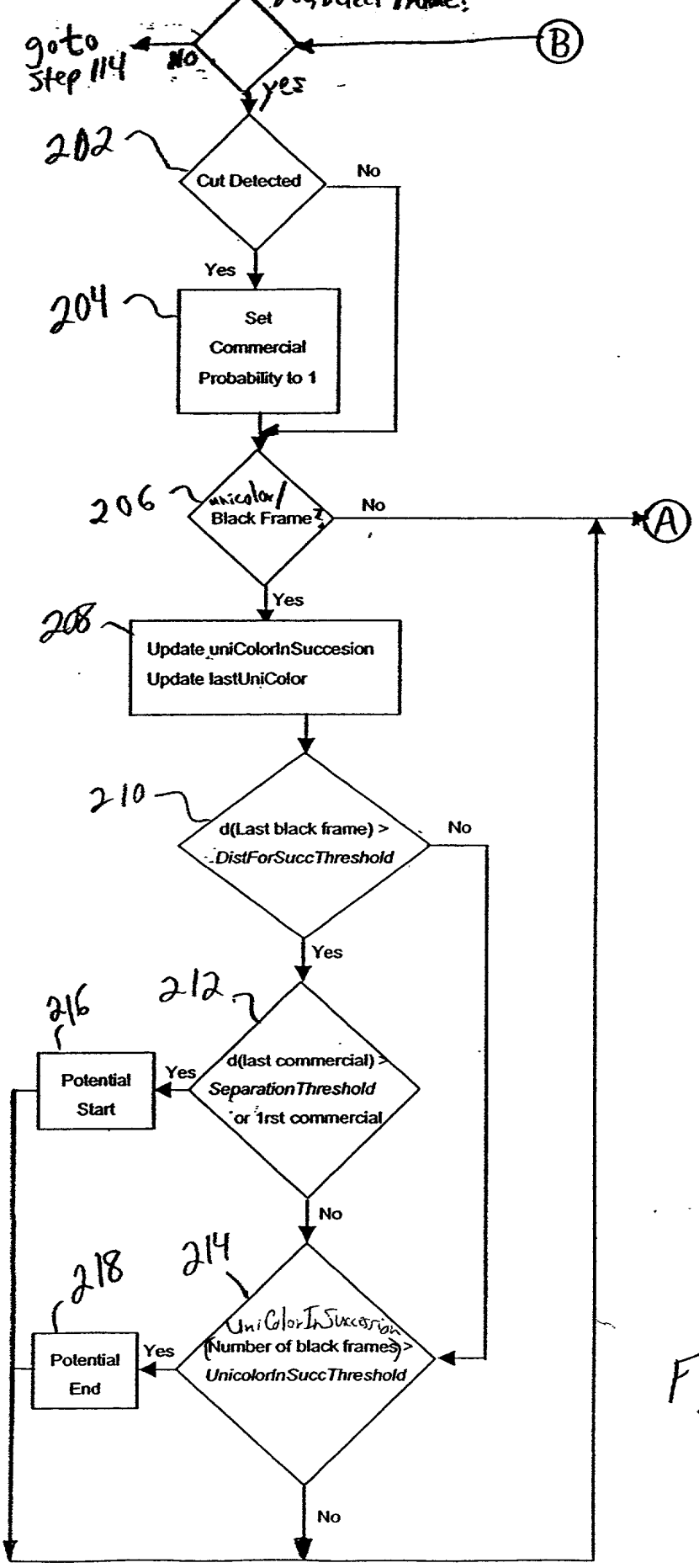
goto step 114
No
B
yes
202
Cut Detected
No
Yes
204
Set Commercial Probability to 1
206
uniColor/ Black Frame?
No
A
Yes
208
Update uniColorInSuccesion
Update lastUniColor
210
d(Last black frame) > DistForSuccThreshold
No
Yes
212
d(last commercial) > SeparationThreshold or 1rst commercial
Yes
216
Potential Start
No
214
UniColorInSuccession (Number of black frames) > UnicolorInSuccThreshold
Yes
218
Potential End
No

Fig. 4a

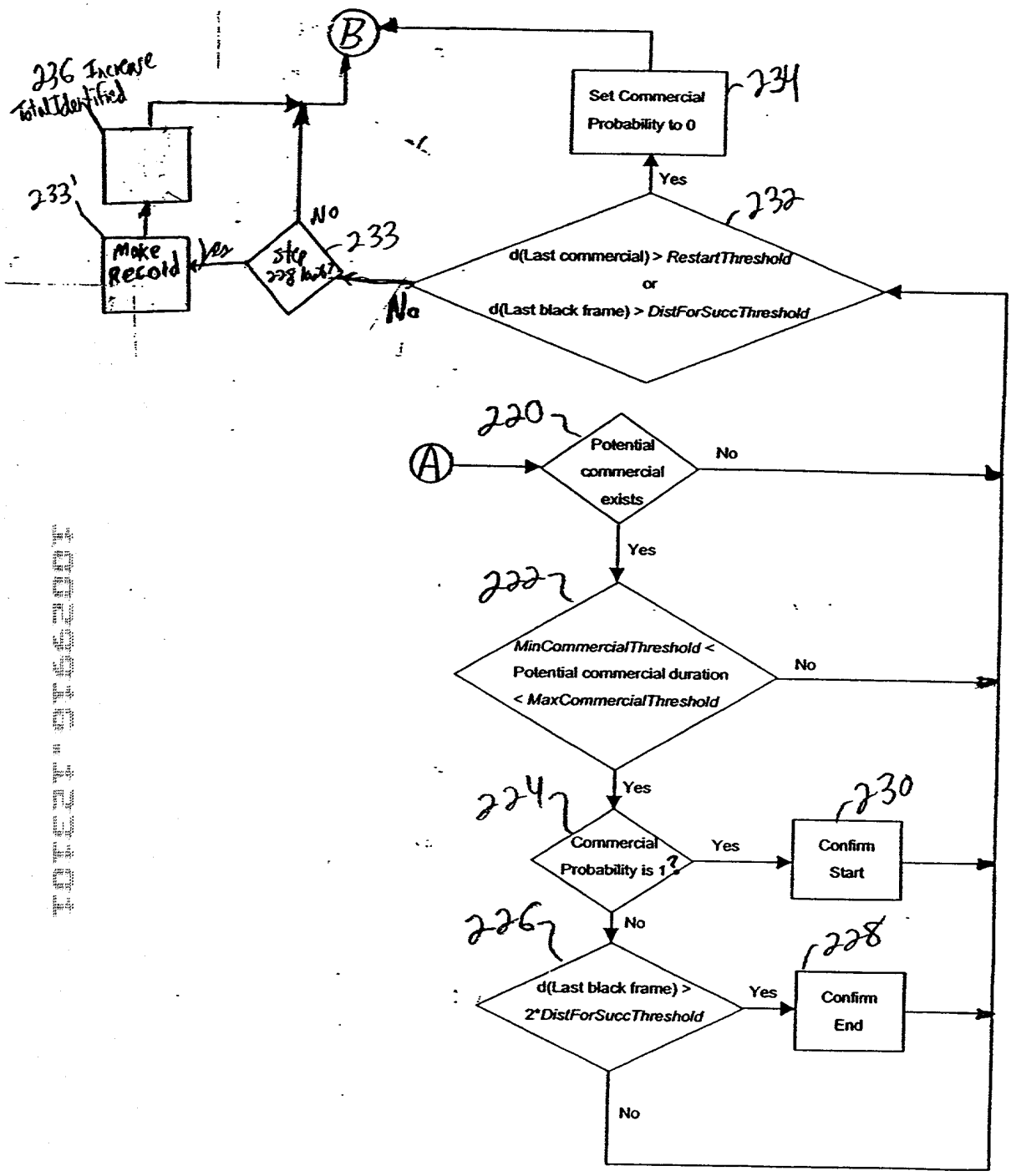
B
236 Increase totalIdentified
233'
Make Record
Yes
Stop 228 hit?
No
233
No
d(Last commercial) > RestartThreshold
or
d(Last black frame) > DistForSuccThreshold
232
Yes
Set Commercial Probability to 0
234
A
220
Potential commercial exists
No
Yes
222
MinCommercialThreshold < Potential commercial duration < MaxCommercialThreshold
No
Yes
224
Commercial Probability is 1?
Yes
Confirm Start
230
No
226
d(Last black frame) > 2*DistForSuccThreshold
Yes
Confirm End
228
No

Fig. 4b

Fig. 5a

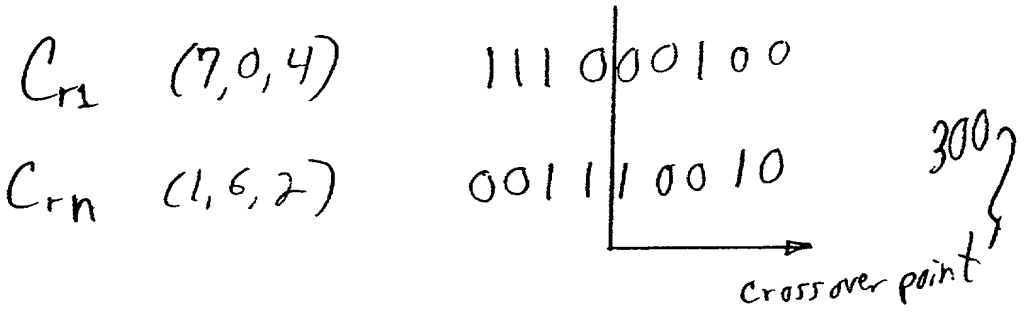

Fig. 5b

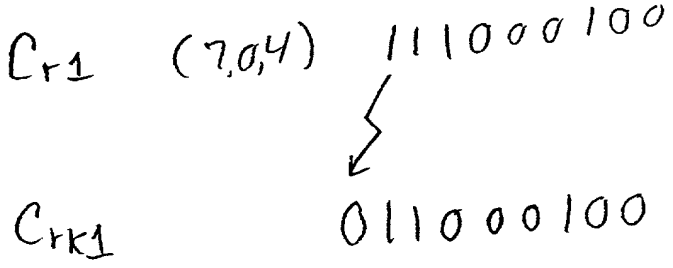

Fig. 5c